

REMARKS

The Office Action requests affirmation of the provisional election previously made. Applicants hereby affirm election of Claims 1-6 and 17-21 drawn to a ceramics structure. Claims 7-16 are thus withdrawn from further consideration as being directed to a non-elected invention.

The claims have been amended to remove the rejection under 35 U.S.C. §112, second paragraph, and are now believed to be definite. The contents of Claim 2 have been incorporated into Claim 1, while the contents of Claim 18 have been incorporated into Claim 17. The claims have been clarified to better define Applicants' invention.

Applicants' invention is to a three-dimension ceramics structure that is solely a ceramic material, formed by baking an intermediate comprising a three-dimension fabric having continuous apertures and ceramics materials adhered to surfaces of yarns constituting the three-dimension fabric. The three-dimension fabric comprises upper and lower fabric layers disposed at a certain distance with each having a plurality of apertures and connecting yarns provided to connect the upper fabric layer with the lower fabric layer. Such a structure is not taught or suggested in the prior art.

Reconsideration and removal of the rejection of Claims 1-6 and 17-21 as anticipated under 35 U.S.C. §102(b) by Kataoka et al. (Japanese Patent No. 2,149,481); of Claims 1, 4, 17, 20 and 21 as anticipated under 35 U.S.C. 102(b) by Haul (U.S. 3,189,563); and of Claims 1 and 17 as anticipated under 35 U.S.C. 102(b) by Kubicek (U.S. 4,157,929) are respectfully requested in view of the present amendments to the claims and the following remarks.

In the Office Action, Claims 1-6 and 17-21 are rejected as anticipated by Kataoka et al. (Japan 2,149,481). The Office Action, relying on the English abstract of the '481 reference states that the reference discloses a porous ceramic body formed by impregnating a knitted fabric with ceramic material, such as alumina. The reference then teaches drying the impregnated fabric and sintering the same to form a porous ceramic body suitable for use as a catalyst carrier or filter medium.

With respect to Kataoka et al., for the Examiner's information, a partial translation is as follows:

(1) Page 3, lower right column, lines 12-15:

"Prior to the sintering, knitted fabrics in which ceramic material is impregnated may be laminated. In laminating, the course directions of the knitted fabrics may be in the same direction, and the intersectional angle and/or the intervals thereof may be set arbitrarily."

(2) Page 4, upper right column, lines 6-19:

"Example 1: A rubber knitted fabric was formed using spun yarn of the number 10 Rayon with a 5GG flat knitting machine. This knitted fabric was immersed in ceramic slurry..., and dried with a mangle. After laminating the knitted fabrics into one centimeter thickness and dried at the temperature of 60°C. Then, the laminated knitted fabrics were disposed in a box type electric furnace, and the temperature was raised to 800°C for taking fifteen hours, and then raised to 1600°C by taking five hours. Thereafter, the temperature was maintained for five hours."

As shown above, although Kataoka teaches that the interval of knitted fabrics can be set arbitrarily when laminating them, it fails to disclose a structure where connecting yarns connect the upper layer with the lower layer. Furthermore, Example 1 of Kataoka discloses that the knitted

fabrics are closely laminated at no interval, which is different from that of the present invention in which the upper and lower layers disposed at a certain distance are connected by connecting yarns.

Claims 1 and 17 have been amended to include connecting layers resulting from connecting yarns which is completely distinct from and not taught or suggested by the Kataoka reference.

With respect to the teachings of the Huel reference, the Office Action alleges that Huel describes a knit glass fabric coated with a ceramic refractory material, with the refractory material having a catalyst on the surface.

In Huel, however, the glass fabric is retained and, while some fusion of intersecting fibers may result, the resultant mass is not limited to a three dimensional ceramic structure devoid of glass fiber or other supporting fibers as in the present claims. In the present invention, the initial supporting fabric is destroyed, leaving only a ceramic structure. Claims 1 and 17 have been amended to specify that the ceramics structure is "of solely ceramic material" to emphasize this feature and further distinguish over the Huel reference.

The same deficiency is found in Kubicek. While Kubicek is cited as showing an open mesh fabric coated with a ceramic material, as with Huel, a glass fiber base is present with a ceramic coating thereon. There is no ceramics structure "of solely ceramic material" as now called for in amended Claims 1 and 17.

In view of the aforementioned amendments and accompanying remarks, claims 1, 3, 4, 6, 17, 19 and 20, as amended, are believed to be in condition for allowance, which action, at an early date, is requested.

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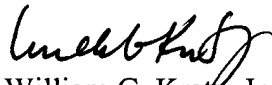
If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicants undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "Version with markings to show changes made."

In the event that this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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PATENT TRADEMARK OFFICE

Enclosures: Version with markings to show changes made

H:\HOME\NANCY\00\001573\AMENDMENT 1

IN THE CLAIMS:

Please amend claims 1, 3, 4, 6, 17, 19 and 20, as follows:

1. (Amended) A three-dimension ceramics structure, comprising:

a three-dimension [fabric-like] ceramics structure of solely ceramic material, obtained by baking an intermediate comprising a three-dimension fabric having continuous apertures and ceramics materials adhered to surfaces of yarns constituting said three-dimension fabric to eliminate organic components of said three-dimension fabric, wherein said three-dimension fabric comprises upper and lower fabric layers disposed at a certain distance and each having a plurality of apertures and connecting yarns connecting said upper fabric layer with said lower fabric layer.

3. (Amended) The three-dimension ceramics structure as recited in claim [2] 1, further comprising one or a plurality of fabric layers each having apertures and disposed between said upper fabric layer and said lower fabric layer.

4. (Amended) The three-dimension ceramics structure as recited in claim 1, wherein high-performance material is adhered to a surface of said three-dimension [fabric-like] ceramics structure.

6. (Amended) The three-dimension ceramics structure as recited in claim 3, wherein

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high-performance material is adhered to a surface of said three-dimension [fabric-like] ceramics structure.

17. (Amended) A three-dimension ceramics structure, of solely ceramics material, comprising a three-dimension [fabric-like] structure made of ceramics, wherein said structure comprises upper and lower layers disposed at a certain distance and an intermediate connecting layer connecting said upper layer with said lower layer.

19. (Amended) The three-dimension ceramics structure as recited in claim [17] 18, further comprising one or a plurality of intermediate [fabric-like] ceramics layers disposed between said upper and lower [fabric-like] ceramics layers.

20. (Amended) The three-dimension ceramics structure as recited in claim 17, wherein high-performance material is adhered to a surface of said [fabric-like] ceramics structure.